IN THE

Supreme Court of the United States

OCTOBER TERM, 1969

No. .....

CONTINENTAL CAN COMPANY, INC.,

Petitioner,

—v.—

CROWN CORK & SEAL, INC.,

Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

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Petitioner, Continental Can Company, Inc., prays that a Writ of Certiorari issue to review the judgment of the Court of Appeals for the Third Circuit in the above-entitled case.

OPINIONS BELOW

The opinion of the Court of Appeals, [illegible] F.2d 601, 163 USPQ 1, is appended as Appendix A hereto, together with the dissenting opinion of Judge McLaughlin. The opinion of the District Court for the Eastern District of Pennsylvania is reported at [illegible] F. Supp. [illegible] 158 USPQ 80, and is annexed as Appendix B.

JURISDICTION

The Judgment of the Court of Appeals for the Third Circuit was entered on July 23, 1969. A copy is attached as Appendix C. A timely Petition for Rehearing was denied on September 16, 1969, and this petition was filed within 90 days of that date. This Court's jurisdiction is invoked under 28 U.S.C. 1254(1).

QUESTION PRESENTED

Did the Court of Appeals apply the correct standard of obviousness in holding patent number 2,654,914 to be invalid?

STATUTORY PROVISIONS INVOLVED

United States Code. Title 35.

§ 103. Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

STATEMENT OF THE CASE

This case concerns the misapplication by the Court of Appeals for the Third Circuit of Section 103 of the Patent Act of 1952 (35 U.S.C. 103) and, we submit, the misinterpretation of this Court's teachings in *Graham* v. *John Deere Co.*, 383 U.S. 1 and *United States* v. *Adams*, 383 U.S. 39.

Notwithstanding that there is only one patent law in the United States and that all patents are granted by a single patent office, standards of patentability vary widely in the several circuits. The result is unseemly forum shopping and an extremely uneven application of the law. Something that is clearly patentable in one part of the nation is not patentable in another part.[1]

The present case simply and concisely illustrates the problem. There existed a pressing need for a means to adapt synthetic plastic materials for use in lining crown caps of the kind used for sealing bottles. Highly skilled scientists in the employ of both petitioner, Continental Can Company, Inc. and the respondent, Crown Cork & Seal Company, Inc. and others tried to find a solution to the problem but failed time after time. Suddenly a scientist in the employ of Continental Can hit upon a solution which

[1] A number of the principal cases involving the application of Section 103 decided in the several circuits up to that time were collected in 1967 in an article entitled "*The Impact of the Supreme Court Section 103 Cases on the Standards of Patentability in the Lower Federal Courts*" in 35 George Washington Law Review 818. Some more recent cases applying Section 103 are, e.g. *National Dairy Products* v. *Borden Co.*, 394 F.2d 887 (1968) (Seventh Circuit); *Comm'r Patents* v. *Roessler*, 397 F.2d 656 (1968) (Dist. of Columbia); *Swofford* v. *B & W, Inc.*, 395 F.2d 362 (1968) (Fifth Circuit); *National Connector Corp.* v. *Malco Manufacturing Co.*, 392 F.2d 766 (1968) (Eighth Circuit).

worked. The Patent Office granted a patent. Commercial success was great. Crown Cork & Seal tried to find a substitute method but failed, and so adopted the Continental Can method, infringing the patent. The District Court upheld the patent, but the Court of Appeals for the Third Circuit held it invalid as obvious, relying on some obscure literature from which no one had deduced the answer to the problem and from which, we submit, the answer could not be deduced. Whatever the prior art taught, it did not teach the answer to the problem.

Other Courts of Appeals seem to have no difficulty in applying Section 103 as Congress intended it and as this Court has said it should be applied. Certiorari should be granted here in order to compare the standards used by the different Courts of Appeals and to prevent a manifestly incorrect and unfair result.

REASONS FOR GRANTING THE WRIT

As one of its lines of business, Continental Can Company, Inc., the petitioner herein, manufactures and sells crown caps of the type used for sealing bottles, such as soft drink bottles. A crown cap is simply a metal shell with a liner. Formerly cork was used as the liner, but shortages of cork and economic conditions in that industry forced crown cap manufacturers to look for substitutes. They tried many materials including peanut shells, corn cobs, wood, paper, rubber, cotton and plastics.

During the early 1940's employees of Continental Can attempted to develop liners made of pre-cut discs of unvul-

canized rubber. They also experimented with forming liners from a fluid latex (rubber) compound. This compound was flowed into crown shells which were rapidly spun to distribute, by centrifugal force, the liquid latex inside the shell, thus forming the liner. The lined crowns were then moved to a separate oven to dry and then to cure by vulcanization. The drying and vulcanization operations required considerable time in the oven. Both of these methods of making rubber linings had serious shortcomings and neither was adopted commercially by Continental Can or by anyone else.

A third approach explored by Continental Can entailed the use of pre-cut unformed plastic discs. Among the plastics tried were solid plasticized vinyl resins. Although vinyl plastics, unlike natural or synthetic rubber, did not have any color, odor or flavoring imparting qualities, solid vinyl discs caused complicated manufacturing problems, and were never used commercially by Continental Can.

In 1946 plastisol[2] was being used by Continental Can in screw cap closures. Curtis E. Maier, an employee of Continental Can, recognized plastisols as possible substitutes for cork in crown liners, but they were unsatisfactory for high speed commercial operations and did not produce satisfactory liners because, although they were easily deposited in the metal shell, they were not satisfactorily shaped by the centrifugal force method then in use. Because of the unevenness of the surface of the liners produced by this method, sealing problems occurred between the liner and the mouth of the bottle. These could be remedied only by

[2] Plastisols are colloidal dispersions of very fine particles of vinyl resins in fluid plasticizers.

using an uneconomically large amount of plastisol. In the spring of 1949 Maier conceived the idea that it might be possible to convert a fluid blob of plastisol rapidly into a properly shaped liner by molding the liner directly in the crown shell. In an experiment conducted under his direction, a small blob of plastisol was placed in a crown shell and an unheated molding plunger placed against the plastisol while the shell was resting on a heated platen. This experiment was not successful. Maier then suggested that the molding punch be heated. The first tests for the heated punch did not produce satisfactory liners because the plastisol stuck to both the punch and the shell. Maier then refined the experimental approach to include control of the heated punch and platen temperatures. The first satisfactory molded plastisol liner was then obtained, but the time required to keep the plastisol under the punch—at least six seconds—was too long for economic commercial production. Maier reasoned, however, that it should be possible to shape the plastisol with the heated plunger and withdraw it almost immediately, leaving the curing to be completed after the punch was withdrawn. Further experiments with this method proved successful.

During the period in which Maier was conducting his experiments, Crown Cork & Seal, although it was familiar with plastisol, sought to solve the liner problem by starting with solid vinyl discs using a heated plunger while the shell rested on a heated platen. Its efforts were unsuccessful and ultimately abandoned. After the Maier patent issued, Crown Cork & Seal adopted his method.

Dewey & Almy Chemical Company, a manufacturer of plastisol, had been spinning plastisol into crown shells at least as early as 1946, but it never occurred to it to mold plastisol *in situ* in the crown shell.

Patent number 2,654,914 on Maier's invention was issued to Continental Can on October 13, 1953 and disclosed a method by which a small amount of liquid plastisol is deposited into the bottle cap shell. The shell is then moved to a molding station where a heated molding plunger is brought into contact with the plastisol while the shell rests on a heated platen. The heated plunger is in contact with the plastisol for only two to three seconds resulting in a partial curing of the plastisol. The lined cap is then moved on to a separate oven to complete the cure.

Petitioner's action for infringement against Crown Cork & Seal, Inc. was tried before the United States District Court for the Eastern District of Pennsylvania (Kirkpatrick, *J.*) in March and April 1967. The jurisdiction of the District Court was based on 28 U.S.C. 1338(a). The District Court found patent number 2,654,914 valid and infringed and a companion patent valid but not infringed. On appeal the majority of the panel of the Court of Appeals for the Third Circuit (Hastie, *C.J.* and Stahl, *J.*) reversed with McLaughlin, *J.* dissenting. A Petition for Rehearing was denied on September 16, 1969.

The Court of Appeals based its decision squarely on obviousness. It said:

> ". . . we believe that a person ordinarily skilled in the art would have been informed and should have understood that a molding plunger could be removed from a plastisol mass, with no damage resulting to the mass, once it had been heated to about 350 deg. F., and that, if only a small amount of plastisol were to be molded, the process could be very brief."[3] (Appendix A, p. A-7)

[3] Cf. the opinion of the trial court: "The step taken by Maier in his patents does seem so simple that one wonders why neither

In reaching this conclusion the Court specifically refused to give effect or weight to evidence that the problem which Maier solved was (1) a known problem of long standing in the industry, (2) that there had been a protracted search by skilled scientists (including employees of respondent) for a solution of it, (3) that the solution reached was based on a reaction which an expert with a knowledge of the material being handled would not have expected, (4) that the method discovered was a commercial success and (5) that competition could solve the problem no other way. In refusing to consider and ignoring such evidence, the Court of Appeals relied on literature which did not reach the result found by Maier and which did not work. The Court's sole standard of obviousness was hindsight. We submit that this is not a proper standard and is not one intended by Congress.

The standard of hindsight is specifically excluded by the statute. It requires the test of obviousness be applied as of "the time the invention was made". In applying its test of hindsight, the Court of Appeals engages in circular reasoning. By looking at some snatches of technical language in prior art in the light of what Maier had discovered it makes a purely subjective deduction that what he discovered should have been obvious to a person having

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Crown Cork & Seal or Continental Can came upon it sooner than they did. This may sound like a suggestion that Maier's contribution to the art was an obvious one, but the plain fact is that it is inconceivable that these two giants of the industry, with practically limitless resources for research and abundant equipment and scientific personnel, could have searched and experimented for years without being able to arrive at a satisfactory result if, all the time, the solution of the problem was perfectly obvious to any of their workers ordinarily skilled in the art." Kirkpatrick, J. Appendix B, p. B-10.

ordinary skill in the art. Having so concluded, it refuses to recognize the clear evidence that the method Maier discovered was not obvious not only to persons having ordinary skill in the art but to persons having extraordinary skill in the art.

In making its untutored subjective determination of obviousness, the Court of Appeals:

(a) disregarded the findings of the trial court to the contrary;

(b) relied on an unsupported inference—which it labelled an inference—on a crucial and highly technical point in concluding, in the face of serious doubt expressed by the District Court, that one of the characteristics of a "tough rubbery mass" was that it could be readily separated from a mold;

(c) explained away a critical time difference in prior art by guessing at an explanation that the record showed was incorrect[4].

(d) ignored the testimony of the only expert called in the case. That expert testified that the method was not obvious, but the result was, indeed unexpected.

By applying a hindsight test not only does the Court of Appeals misapply the statute, but it completely misreads this Court's opinion in *Graham* v. *John Deere Co.*, 383 U.S.

[4] In its discussion of the Root patent the Court of Appeals explains away the difference in the time required to shape the plastisol by assuming that the thickness of the material used in a process relating to plastisol shoe soles was materially greater than the thickness of the material used in the crown cap liner. The record shows that this was not so (Tr. 429-430). Of course, the matter of time is the whole point of the Maier invention.

1 and *United States* v. *Adams*, 383 U.S. 39. What Justice Clark meant by his discussion of obviousness and "secondary" considerations is made abundantly clear in his discussion of the novelty and non-obviousness of the Adams invention:

(a) "An inoperable invention or one which fails to achieve its intended result does not negative novelty."

(b) " . . . the Adams battery 'wholly unexpectedly' has shown 'certain valuable operating advantages over other batteries' while those of which it is claimed to have been copied were long ago discarded."

(c) ". . . known disadvantages in old devices which would naturally discourage the search for new inventions may be taken into account in determining obviousness."

(d) ". . . noted experts expressed disbelief in it."

(e) ". . . the Patent Office found not one reference to cite against the Adams application."

Had the Court of Appeals followed the methodology of Justice Clark, we believe that it could not have found the Maier invention obvious. Its erroneous application of its own non-statutory standard has led to an improper result.

CONCLUSION

For these reasons a Writ of Certiorari should issue to review the judgment and opinion of the Court of Appeals for the Third Circuit.

Respectfully submitted,

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December 11, 1969

APPENDIX A

UNITED STATES COURT OF APPEALS

For the Third Circuit

No. 17290

Continental Can Company, Inc.

v.

Crown Cork & Seal Company, Inc.,

Appellant.

Appeal From the United States District Court for the Eastern District of Pennsylvania

Argued January 21, 1969

Before:

Hastie, *Chief Judge*, and
McLaughlin and Staul, *Circuit Judges*.

Opinion of the Court

(Filed July 23, 1969)

Hastie, *Chief Judge*.

This is a patent infringement suit, with a counterclaim asking that the court declare plaintiff's patents invalid. Continental Can Company, Inc., the plaintiff below, owns patents No. 2,654,913 (hereafter designated as 913) and No. 2,654,914 (hereafter 914), both issued on October 13, 1953, on the application in July 1950 of Curtis B. Mazer,

an employee of the plaintiff. The plaintiff alleges that the defendant, Crown Cork & Seal Company, Inc., has infringed the Maier patents by the manufacture and sale of articles made by a process that differs from Continental's only in insignificant details.

The district court, sitting without a jury, found both the Maier patents valid and that 914 had been infringed, 281 F. Supp. 474.[1] The defendant has appealed.

Both patents in suit relate to a method for lining metal caps commonly used on beer and soft drink bottles with a synthetic material known as plastisol. In the method disclosed by patent 913, an unlined bottle cap, open side up, moves under a heated nozzle through which a small quantity of hot liquid plastisol is deposited into the cap. The cap is then conveyed onto a heated platform where a heated plunger descends and compresses and shapes the plastisol within the cap. At a temperature of 375 degrees Fahrenheit, with 75 pounds per square inch pressure, the shaping under the plunger requires as long as six seconds. Apparently the amount of time required for molding inhibited successful commercial exploitation of this patent.

Patent 914 discloses as a first step a process similar to the 913 patent except that the cap, with its plastisol contents, may be under the heated plunger for as little as one second, but more often two or three seconds. The cap is then immediately conveyed into a heated oven where the already molded plastisol liner hardens to the firmness desired in the finished product.

At the outset we observe that these are method patents, disclosing a way in which heat and mechanical means are used to convert a globule of plastisol, a known substance,

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[1] The amount of damages resulting from the infringement of 914 was left for reference to a special Master.

into a liner fitted into a bottle cap. Moreover, the methods taught employ mechanical structures found in the prior art, as seems to be conceded by the appellee. The use of a heated nozzle to deposit hot liquid composed of resin, a plasticizer and a congealing agent in an inverted bottle cap to form a lining was taught by South African Patent No. 2556/47 as early as 1947. The molding of a bottle cap liner under a heated plunger as the inverted cap rests on a heated platform and the subsequent transfer of the cap to an oven are disclosed by United States Patent No. 2,688,776, issued in 1954, but applied for in May 1950 prior to the July 1950 application for the patent in suit. Indeed, as the court below properly observed, ". . . it appears that practically every major step in the process is to be found somewhere in the prior art." 281 F. Supp. at 476. The question in dispute is whether the procedures disclosed by the patent would not have been obvious to a person ordinarily skilled in the art involved, in the light of the disclosures in the prior art.

The conclusion that Continental's patents were nonobvious seems to have been based on the district court's findings of "the existence of a problem, and of a protracted search for a solution of it," and the court's view that there was "serious doubt whether a man ordinarily skilled in the art would have realized that semi-liquid plastisol would cure quickly enough to be satisfactory and that the plunger could be removed without damaging the molded shape." 281 F. Supp. at 478, 9. The court also stressed the noteworthy commercial success of the Maier process.

The Supreme Court has suggested recently that:

> "Such secondary considerations as commercial success, long felt but unsolved needs, failure of others,

> etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy." *Grakam v. John Deere Co.*, 1966, 383 U.S. 1, 17.

However, such considerations, by themselves, cannot support a finding of nonobviousness if it is established otherwise that a patent teaches nothing of significance that has not already been disclosed. *National Connector Corp. v. Malco Mfg. Co.*, 8th Cir. 1968, 392 F.2d 766; *Continental Can Co. v. Old Dominion Box Co.*, 2d Cir. 1968, 393 F.2d 321; *Higley v. Brenner*, D.C. Cir. 1967, 387 F.2d 855; *Bentley v. Sunset House Distributing Corp.*, 9th Cir. 1966, 359 F.2d 140; *Chemical Construction Corp. v. Jones & Laughlin Steel Corp.*, 3d Cir. 1962, 311 F.2d 367.[2]

It thus appears that the validity of the patents in suit is dependent upon the contention that a man ordinarily skilled in the art and aware and mindful of the prior art's teachings would not have realized that semi-liquid plastisol could be molded into a bottle cap liner, at commercially practical speeds, by placing an inverted cap on a heated platform and merely "kissing"[3] a plastisol globule inside the cap with a heated plunger. The critical contention that the feasibility of such a method was not obvious is grounded on the assertion that a man ordinarily skilled in the art would not think that the globule of plastisol in the cap would become sufficiently firm under a brief touch of a

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[2] To the extent that a dictum in *Yablick v. Protecto, etc., Corp.*, 3d Cir. 1927, 21 F.2d 885, at 887 may indicate otherwise, that dictum is not approved and will not be followed.

[3] This is counsel's terminology used at argument before this court to describe appellee's process.

heated molding plunger to allow the plunger's removal without damaging the molded shape of the plastisol.

To test this contention we examine the prior art, since, in legal contemplation, one of ordinary skill in the art is chargeable with comprehensive knowledge of it. See *Chemical Construction Corp. v. Jones & Laughlin Steel Corp., supra; Blisscraft of Hollywood v. United Plastics Co.*, 2d Cir. 1961, 294 F.2d 694, 696. Early literature disclosed that plastisol in a fluid state could quickly be converted into a solid substance by heating to temperatures between 275° and 375° Fahrenheit—temperatures which were employed in the 914 process. *The India-Rubber Journal* of August 31, 1946 disclosed that "The fluid nature [of plastisol] in either the moulded or coated form is converted to a finished resin by heat treatment at 300-350° F. in a matter of seconds, depending on thickness and on the means of heat application." And in *British Plastics* of April 1948, at page 167, it was pointed out that "the change from the fluid to the elastic state is accomplished by heating, and at 150 deg C the transition is practically instantaneous."[4]

We recognize that the prior art includes some suggestion that molds be cooled prior to separation from the plastisol,[5] but we find no admonition that removal without cooling would result in a deformation of the plastisol article. On the contrary, we have found disclosed in the prior art the following teaching:

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[4] We find no significant distinction between the times contemplated by "in a matter of seconds" or "practically instantaneous" in the literature and the time of two to three seconds suggested for heat-molding in the 914 patent.

[5] *E.g. Modern Plastics*, June 1947, p. 111; *Kunstoffe* [Synthetic Substances], May 1942, p. 138.

> "To cure the plastisols to tough, rubbery masses, baking temperatures at least as high as those needed for organosols must be used (350 deg. F. or 177 deg. C.). Again, the time required may be quite short, only sufficient to insure that the entire mass reaches the requisite temperature." *Official Digest, Federation of Paint and Varnish Production Clubs*, Dec. 1946, article entitled "A New Technique in Coatings, 'Vinylite' Resin Dispersions."

Inferentially at least, one of the properties of a "tough, rubbery mass" would be its susceptibility to separation without damage from its mold, regardless of how short a time it has taken to achieve that "tough, rubbery" state. Moreover, this characteristic of plastisol was disclosed and utilized in patent No. 2,638,633, applied for by Andrew Root in September 1949. In the Root method of forming shoe soles liquid plastisol is poured into a mold heated to 270 to 325 deg. F.[6] After sixty seconds, the plastisol adjacent to the mold has formed a shape retaining shell, and the shoe, which formed the top part of the mold, is then lifted free of the mold, bringing with it the adhering shell.[7] Cooling the mold is not to be found in this process.

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[6] While the patent refers to 270 to 325 degrees Centigrade, plaintiff has stipulated that 270 to 325 degrees Fahrenheit is the correct measure.

[7] The mass adheres to the shoe since the plastisol adjacent to it does not reach the temperature range necessary for easy separation. This result, of course, is intended.

This process may not be distinguished from the patents in suit because of the molding times involved. In the Root process the sixty second molding time is the result of the large quantity of plastisol used. In the Maier method the comparatively minute quantity of plastisol employed allows the critical molding temperature to be reached in two or three seconds.

Therefore, we believe that a person ordinarily skilled in the art would have been informed and should have understood that a molding plunger could be removed from a plastisol mass, with no damage resulting to the mass, once it had been heated to about 350 deg. F., and that, if only a small amount of plastisol were to be molded, the process could be very brief.

This conclusion is significantly supported by the testimony of Maier himself in regard to the development of his process. His testimony reveals that the Dewey & Almy Chemical Company had suggested to him that plastisol would make a suitable cap liner; that he conceived the idea of shaping it in the cap by means of a punch; that in the first attempts the molding punch or plunger was not heated and the results were unsatisfactory; that then a heated plunger was used and when the temperatures of the plunger and the cap, positioned on a heated platform, were controlled the process was successful; and that this happened within a week of his first going forward with the idea. Thus there is no indication that Maier, once having conceived the idea of using a heated molding plunger,[8] had to wrestle with any problem of adhesion of the plastisol to the plunger. It is true that when Continental's staff put Maier's process to a test, initial difficulty was experienced with plastisol sticking to the plunger. But within days this problem was solved merely by the application of adequate heat to the plunger and the platform. All of this was simply the application of existing knowledge.[9]

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[8] That Maier thought of using a plunger is not inventive since this procedure had been included in numerous older cap lining methods.

[9] Thus, Maier's own deposition suggests that what made his process work satisfactorily was heating of the plastisol to the 300-

This court has considered extensive testimony and many pages of statistics and studies that show to what extent the plastisol is made firm under the molding plunger and how far partially "cured" or fully "cured" plastisol stretches. These details seem to have been introduced to explain scientifically why Maier's method works as it does. But although these explanations may be elaborate or complex, they may not be considered as evidence of nonobviousness of the achieved result, since there is no evidence that Maier's discovery of these reasons led him to develop his method. On the contrary, the studies were made and statistics gathered after the event to provide an explanation of the chemistry of the already working method. *Cf. Cresap v. Chemplast, Inc.*, D.N.J. 1962, 216 F. Supp. 870, affirmed per curiam, 3d Cir. 1963, 316 F.2d 921.

For these reasons we find patent No. 2,654,914 invalid. A fortiori, the less elaborate 913 patent, which does not teach the alleged novelty of merely "kissing" the plastisol, is not inventively distinguishable from already established methods of molding plastisol.

The judgment of the district court filed March 18, 1968 will be vacated and the cause remanded for the entry of a judgment denying relief on the plaintiff's claim and, on the defendant's counterclaim, adjudicating both patents invalid.

McLAUGHLIN, *Circuit Judge*, dissenting.

The admitted issue here is whether the Maier 914 method patent is invalid for obviousness. I agree with Judge Kirkpatrick in the District Court that patent 913 is not infringed.

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350 deg. F. temperature range. As had been pointed out, the fact that plastisol becomes tough and rubbery under such conditions was disclosed in the prior art.

I do not understand the majority opinion to dispute the directive of the governing Patent Act U.S.C. Title 35, § 282, that "the burden of establishing the invalidity of a patent shall rest upon the party asserting it.". That burden is a heavy one. To overcome the assumption of a patent's validity there must be "convincing evidence of error". Radio Corporation v. Radio Engineering Laboratories, Inc., 293 U.S. 1, 7 (1934). In the light of the whole true historical picture of the efforts to make satisfactory liners for metal caps of beverage bottles let us see if the Maier 913 patent of procedures to produce such a liner were obvious to a person ordinarily skilled in the art involved. The problem was factual. The opinion in the recent Eimco Corporation v. Peterson, etc. Co., 406 F.2d 431, 435, 436 (10 Cir. 1968); rehearing denied, March 17, 1969, presents this very well, saying "As indicated in the Graham case, obviousness 'to a person having ordinary skill in the art' is an illusive factual subject to be determined by the trial court * * * which determination should not be set aside in the absence of clear error." In another late decision, Amerline Corporation v. Cosmo Company, 407 F.2d 666 (7 Cir. March 3, 1969), the fact finding of the trial court that the suit patent was invalid for obviousness was affirmed because it was not "clearly erroneous".

The majority, because as the trial court said "practically every major step of the process is to be found somewhere in the prior art", would have it that what Maier did "was simply the application of existing knowledge". What Maier actually did was to substitute plastisol in a semi fluid state for other known materials. That combination was new, mint fresh, completely Maier's. It was what interested parties e.g. the plaintiff and defendant before us, had been unsuccessfully trying to achieve for years.

The substitution of material as Maier accomplished it, under the particular unescapable facts, did constitute invention. That doctrine is sound patent law and so recognized generally, including this circuit. Back in 1920, Low v. McMaster, 266 F. 518 (3 Cir. 1920) dealt with a comparable problem, a substitution of a solid for the liquid fuel of the prior art. Judge Woolley for the court, in upholding both said patents, stated regarding the substitution of materials as constituting invention, pp. 519, 520:

> "It is also the law, as exceptions to this general rule, that if the substitution involved a new mode of construction; or if it developed new properties and uses of the article made; or where it produces a new mode of operation, or results in a new function; or when it is the first practical success in the art in which the substitution is made; or where the practice shows its superiority to consist not only in greater cheapness and greater utility, but also in more efficient action, it may amount to invention. Smith v. Goodyear Dental Vulcanite Co., 93 U.S. 486, 496, 23 L. Ed. 952; Celluloid Mfg. Co. v. Crane Chemical Co. (C.C.) 36 Fed. 110; Potts v. Craeger, 155 U.S. 597, 608, 15 Sup. Ct. 194, 39 L. Ed. 275; Walker on Patents, §§ 28, 29, 36."
>
> "These are the principles to be applied here."

In a later decision of this court which was also fundamentally similar to the case at bar, Gilbert Sprunance v. Ellis-Foster Co., 114 F.2d 771 (1940), Judge Biggs for the court said:

> "In the light of the foregoing we think that Weber did demonstrate inventive genius, that he seized upon a thing which was available to all but which had been

> grasped by none, and was able to fit it into a new place, to create an original and useful result. We conclude that this was not the exercise of mere mechanical ingenuity or a step in the natural development of an art, but was in fact invention. The case at bar presents an almost classic example of a new use."

Yablick v. Protecto Safety Appliance Corporation, 21 F.2d 885 (3 Cir. 1927) passed upon the same sort of factual basics as are the major elements of the instant appeal. There a known chemical, substituted for substances unsuccessfully used in the apparatus concerned, was upheld as patentable. The court said p. 886 with reference to the substitution, "This fact was not translated into commercial utility until the genius of the patentees discovered it."

There can be no possible misunderstanding of the opinion of the trial judge. He correctly found invention in the substitution of the plastisol. Because Maier's invention was genuine and vital in its special field, the facts that the entire industry had been unable to solve the liner difficulty and the great commercial acceptance of the new combination, though of secondary consideration, were under Graham v. John Deere Co., 383 U.S. 1, 18 (1966) relevant as indicia of nonobviousness against the true invention background of the Maier process. The court fully understood this and so plainly indicated in the opinion. In addition it was quite properly noted in connection with the merits, that in this suit, as in Jones Knitting Corporation v. Morgan, 361 F.2d 451, 458 (3 Cir. 1966), there exists "a lack of any convincing testimony of those skilled in the art, of obviousness."

The carefully reasoned, fully documented opinion of the trial court is firmly rooted in current governing patent

law. To casually brush it aside where the contention of obviousness does not even have "a dubious preponderance" [1] is a distinct loss to a much needed, high level implementation of that law. I would affirm the judgment of the District Court.

[1] Radio Corporation v. Radio Engineering Laboratories, supra, p. 21.

APPENDIX B

In the

UNITED STATES DISTRICT COURT

For the Eastern District of Pennsylvania

Civil Action No. 33190

Filed Nov. 27, 1967

Continental Can Company, Inc.

v.

Crown Cork & Seal, Inc.

Before:

Kirkpatrick, J.

This is an action for the infringement of two patents,[1] 2654913 and 2654914, issued to Maier, both applied for July 27, 1950 and issued October 13, 1953, and both being method patents for making sealing members or liners for metal caps of beverage bottles. In both, the liners are molded in the crown or metal shell of the cap, of a synthetic material known as plastisol. The only important differ-

[1] The rather complicated pleadings by which the issue was finally arrived at need not be recited in detail. The action, as now presented for trial, amounts to a simple infringement suit with counter-claim challenging validity.

[2] Also referred to in the record as "crown liners," "gasket liners," "sealing pads" and "cushion pads."

ence between them is that the 914 patent calls for a second step, namely "curing" the molded liners in an oven, whereas in the 913 patent the curing is accomplished in a single step by the same means as the molding.

The defenses are invalidity for obviousness, invalidity for indefiniteness, non-infringement and double-patenting. The challenge on the ground of obviousness presents the main issue in the case.

Plastisol is a colloidal suspension of particles of a resin in a liquid plasticizer. It is viscous or semi-liquid at room temperature but when heated to between 300° and 350° F., the resin particles absorb the plasticizer and swell, and further heating causes the swollen particles to fuse into a solid odorless inert vinyllike material eminently suitable for the lining of metal caps for bottles. Plastisol was developed in Germany and Great Britain in the 1930's and was available in commercial quantities in the United States by 1946 or 1947.

Both patents disclose and claim a process in which plastisol in a flowable state is deposited in the metal shell or crown cap which is then positioned upon a heated platen where a heated plunger comes down upon it to apply light pressure, producing a wafer-like disc having a thickened circumference which will form a seal between the crown and the lips of the bottle. In patent 913, the plunger remains on the plastisol for approximately six seconds, with the result that a solid liner ready for use is produced. In patent 914, the plunger is removed after two or three seconds, and final curing takes place in an oven further along the line.

Taking up the 914 patent first: the plaintiff relies on claims 2, 3, 5, 7 and 8 and cites as typical, claim 2, which is—

"The method of forming sealing pads for closure seals, comprising discharging into a closure shell having an internal lacquer coating of vinyl resin, a quantity of a semi-liquid resinous material comprising particles of a vinyl resin dispersed in a fluid vinyl resin plasticizer, pressing a heated forming plunger against the material while the closure shell is on a heated support for shaping the material into a sealing pad having an annular thickened portion and a central thin portion, maintaining the heat and pressure until the material adheres to the closure shell and has gelled into a shaped form-maintaining mass, and then disengaging the plunger and further heating the shaped mass until the material has become a cured essentially uniform mass."

The plaintiff's admissions in its brief and at the oral argument clear the way for us to arrive at once at the issue of obviousness without a detailed examination of much of the prior art cited by the defendant.

There is no dispute that in the manufacture of liners for bottle caps, a two-step process consisting of first molding and then curing in an oven is old. Production of discs of solid material by this method was well known, and crown liners so produced were in commercial production before the Maier patents issued. It was also admitted that the means disclosed in the patents by which the molding of the liners was accomplished, namely, heated plungers cooperating with heated platens, was not new. The characteristics of plastisol, its suitability for use as crown liners and its performance under heat and pressure, including its ability to solidify quickly after being heated to certain high temperatures, had been studied and the results published.

Thus, it appears that practically every major step of the process is to be found somewhere in the prior art. However, the combination claimed by the patents is no where disclosed. Specifically, there is no evidence of any prior art plunger-and-platen process in which plastisol was deposited in the metal cap in a semi-liquid or flowable state and molded in situ.[5]

The defendant's case for invalidity is based largely upon the textbook principle of patent law that the use of a new material whose characteristics are well known in an old process is not a patentable advance even though the new material is superior to the old and a better result is obtained. This principle has met with many exceptions or modifications since Hotchkiss v. Greenwood, 52 U.S. 248 (a decision generally accepted as its origin) with the result, that today there is no such inflexible rule of law if there ever was one. The authorities dealing with substitution of materials are simply a branch of the law relating to obviousness as enacted into Section 103 of the Patent Statute.

Decisions in the Third Circuit, both before and since the Patent Act of 1952, make it clear that patentability of a process may be found although the only new thing about it is the substitution of a new material, if such change is unobvious.

In Yablick v. Protecto, etc. Corp., 21 F.2d 885, 887, the court said—

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[5] U.S. Patents 249407 and 2528506 to Foye were issued in 1949 and 1950 for a method of making crown liners from plastisol introduced into the metal cap in a more or less fluid form. However, the method was an entirely different one from that of the patents in suit, the molding being carried out not by plunger and platen but by spinning the cap

"It is also the law, as exceptions to this general rule, that, if the substitution involved a new mode of construction, or if it developed new properties and uses of the article made, or where it produces a new mode of operation, or results in a new function, or *when it is the first practical success in the art in which the substitution is made*, or where the practice shows its superiority to consist not only in greater cheapness and greater utility, but also in more efficient action, it may amount to invention." (Emphasis added.)

In Ellis Foster v. Gilbert Sprunance Co., 28 F. Supp. 375, 378, a decision affirmed by the Circuit Court of Appeals, 114 F.2d 774, this court said, "That the substitution of one known material for another in a known combination may amount to invention, depending upon whether the step went beyond what was obvious to persons skilled in the art, is too well-settled to require citation of authority."

I doubt that any court today would deny patentability to a process the only novelty of which consisted of the substitution of one material for another in a case where the new material was an unobvious choice.

The question then comes down to the issue of obviousness and we approach it in the light of the provision of the Patent Act of 1952 which made statutory the existing rule that "the burden of establishing the invalidity of a patent shall rest on the party asserting it." U.S.C., Title 35, Section 282. Commenting upon the rule, the Court of Appeals in Jones Knitting Corp. v. Morgan, 361 F.2d 451—a case which involved patentable novelty over the prior art quoted and adopted the statement of the Supreme Court in Radio Corporation of America v. Radio Engineering Laboratories Inc., 293 U.S. 1 as follows—

> "A patent regularly issued, . . . is presumed to be valid until the presumption has been overcome by convincing evidence of error . . . (It is the) common core of thought and truth, that one otherwise an infringer who assails the validity of a patent fair upon its face bears a heavy burden of persuasion, and fails unless his evidence has more than a dubious preponderance."

Turning now to the evidence, it appears that the industry was confronted with a problem as far back as the beginning of World War II and even before that. The problem was to find a satisfactory substitute for the generally accepted material—a composition of ground cork and binder materials—from which bottle cap liners were made. The search for such substitute was triggered by war restrictions. The need was a "very urgent one" and recognized as such by the government's War Production Board which convened a meeting in Washington in May, 1942, at which representatives of the government and substantially the entire industry exchanged information on technical experiences with every type of substitute previously tried, the problems encountered and possible solutions.

The search did not cease when war shortages came to an end. Cork has never proved a completely satisfactory material and cork-liners were subject to excessive drying and consequent loss of sealing properties during storage, and mold growth in moist storage, conditions objectionable to flavor with beer and certain soft drinks, characteristics which necessitated the addition of inert "spots" upon the liners.

In 1940, the defendant began experimenting with rubber as a substitute for cork. Throughout World War II and during the years that immediately followed (1945-1949)

it carried on "much research on cork substitute liners". During this period, it tested many liners made from a great variety of materials such as shredded bark, ground peanut hulls, cellulose fines, paperboard, rubber and plastics. The work was done in the defendant's research department which, by the 1950's, numbered some thirty employees.

As late as 1950, the defendant was still experimenting with rubber discs but in that year it initiated a project directed toward the development of a process for producing crown liners from precut solid discs of plasticized polyvinyl chloride. This approach yielded nothing of commercial value and finally, immediately upon learning of the Maier patents, the defendant's research and development department gave up rubber and based its work upon the Maier methods, directing it particularly to the "circumvention of the Maier et al. patents". After about three years of effort along this line, the defendant decided to embark on production of liners by the method now accused as an infringement.

Paralleling the defendant's research, the plaintiff also spent a great deal of time in the search for a cork substitute.

During the early 1940's, a fluid latex compound was used in a process which formed the liner by spinning the crown. In 1946, the plaintiff's attention was called to a method used by Gora & Lee, a comparatively small manufacturer, whose plant was visited by representatives of both the plaintiff and the defendant. Although the method was very similar to that of the Maier patents, the material used by Gora & Lee was not plastisol but solid rubber discs. Research at Continental proceeded thereafter (mainly under the direction of Maier) until it eventuated four years later in the application for the Maier patents in July of 1950.

Production of liners by the plaintiff after the issuance of the Maier patents proved to be very much of a commercial success. Crowns made by the methods of the patents have replaced "spotted in" cork lined crowns for a number of the large bottling concerns including all but two of the major U.S. breweries and Canada Dry and other soft drink bottlers. The plaintiff's sales of plastisol-lined crowns in 1965 amounted to 30 million gross which was approximately 39% of its total crown sales. The defendant sold 31 million gross in 1965 or approximately 28% of its crown sales in that year. The combined crown sales of the plaintiff and the defendant was, in 1963, close to two thirds of the total crowns sold in the United States.*

All this adds up to an urgent demand for a satisfactory substitute for cork plus a long period of research and experimentation carried on by the two largest manufacturers in the country with failure to achieve any satisfactory result until the advent of the patents in suit plus, in addition, a remarkable record of commercial success.

These factors constitute evidence from which patentability may be found. I am convinced that the substitution of plastisol in a semi-fluid state for other known materials was, under the circumstances of this case, an unobvious step.

In Jones Knitting Corp. v. Morgan, supra, the Court said,

> "We . . . also note the commercial success of the Morgan fabric, the long felt need for the invention, and the availability of the tools to produce the invention and

* "The fact that since 1963 there has been a falling-off in the number of plastisol-lined crowns sold in the United States, possibly due to the increased use of cans in place of bottles for beverages, does not in any way affect the force of the figures showing the immediate commercial success of the patented process.

the failure of others to achieve the result. The relevancy of such considerations is acknowledged in the statement of the Supreme Court in Graham v. John Deere Co., supra:

"Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc. might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. See Note, Subtests of 'Nonobviousness,' 112 U.Pa.L. Rev. 1169 (1964)."[1]

Referring to the fact that there was a "real need" for the fabric which was the subject of the patent involved and that no one had come up with a commercially successful product until the patentee, that there was a great interest in the industry to develop a fabric having the characteristics desired by salesmen and "the overriding commercial success" of the patented fabric, the Court said,

"'All of this is very strong evidence of invention entitling the defendants to a valid patent in the face of a lack of any convincing testimony, on the part of these skilled in the art, of obviousness."

I am aware that there are statements in some opinions to the effect that the existence of a problem and of protracted search for a solution of it will not, of themselves, support a finding of patentability. Under the decision in the Graham case, they do, however, in a proper case constitute evidence and even if there were nothing in the case

[1] 383 U.S. 1, 17

except the switch to a different material, it seems to me that Maier's contribution was not so clearly obvious that I may not base a finding of patentability upon the circumstances which the court in the Graham case called secondary evidence.

It is to be remembered that in the present case the search for a method using a substitute for cork did not consist of sporadic efforts by small or ill-equipped concerns. It was carried on by the research departments of the two largest producers in the country, whose combined output runs into the billions. It may not be easy to put one's finger upon the exact factors which produced the result which turned the unsuccessful attempts of the industry into a commercial success but certainly there is at least serious doubt whether a man ordinarily skilled in the art would have realized that semi-liquid plastisol would cure quickly enough to be satisfactory[6] and that the plunger could be removed without damaging the molded shape.

The step taken by Maier in his patents does seem so simple that one wonders why neither Crown Cork & Seal or Continental Can came upon it sooner than they did. This may sound like a suggestion that Maier's contribution to the art was an obvious one, but the plain fact is that it is inconceivable that these two giants of the industry, with practically limitless resources for research and abundant equipment and scientific personnel, could have searched and experimented for years without being able to arrive at a satisfactory result if, all the time, the solution of the problem was perfectly obvious to any of their workers ordinarily skilled in the art.

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[6] It will readily be seen that in any production running to the quantity of that in the present case the saving of seconds is a matter of the utmost importance.

This record, I think, furnishes a strong and convincing case for nonobviousness of Maier's method of solving the problem with which the industry had been concerned.

The process practiced by the defendant includes all the major steps set out in Claim 2. It begins with depositing in a shell having an internal lacquer coating of vinyl resin, a quantity of semi-liquid resinous material comprising particles of a vinyl dispersed in a fluid vinyl resin plasticizer, terms which properly describe plastisol, (referred to in the testimony as "paste resin"). The shell is then moved to a molding press where it rests on a heated platen and a heated plunger is brought into light contact with the plastisol. The heat and pressure is maintained until the plastisol adheres to the closure shell and has gelled into a shaped form-maintaining circular disc (in practice, a matter of three to four seconds). The crown is then moved on what the defendant's witness described as a "curing conveyor" through a "post cure oven".

The generally accepted test for infringement of a process claim is whether the accused process reaches the same result as the patent by the same, or substantially the same, means. At only one point is there any question whether the defendant's process fully meets this test. Claim 2 of the 914 patent contains a requirement that the material in the shell be disengaged from the plunger when it "adheres to the closure shell and has partially gelled into a shaped, form-maintaining mass". The defendant contends that its liners are fully, rather than partially, cured (gelled) at the time they leave the platen and plunger. I think that the evidence clearly shows that the defendant's liners are not fully cured at that point. It is true that they will seal bottles effectively and that the disc has reached the point where it is comparatively clear or translucent. However,

tests made by the plaintiff's witnesses establish to my satisfaction that the liners are changed substantially, as indicated by a gain in tensile strength and elongation, by the defendant's oven treatment; and I think that the term "partially cured" or "partially gelled" applies even though the liners which it describes are usable, if the manufacturer requires additional oven heating in order to give them the properties which it desires them to have when marketed.

Patent 913 is not infringed. The process claimed is essentially different from that claimed by patent 914 and practiced by the defendant in that as has been noted the former calls for complete curing underneath the plunger whereas the latter requires only partial curing at that point and the completion of the process in an oven. This is not a mere matter of words. The separate curing in the oven is an essential part of the defendant's process. It frees the more complicated and expensive press for additional production in approximately half the time required by the process disclosed in the 913 patent. This may seem a slight improvement but it is nevertheless a substantial one when the immense volume of the output of these operations is considered. Only if the second, or oven curing, step could be considered a useless appendage of the plunger and platen operation (and that it is not) could it be disregarded and the defendant's process be an infringement of 913.

The defendant explains the use of an oven in the process as practiced by it as simply a means of imparting to the cap liners a gloss, but it seems unlikely that the defendant added this substantial step to its process for the sole purpose of improving the appearance of the finished disc in a particular which the customer never sees until he opens the bottle.

My holding of non infringement is based entirely on the foregoing consideration and not upon the defendant's contention that its puffed liners contain a vaporizable component. As to that, I accept Dr. Braun's testimony that the defendant's puffed or foamed liners are essentially free of vaporizable components.

The defendant has raised the defense of double patenting. The vice against which a defense based on double patenting is properly directed is unlawful extension of a patent monopoly. There can, of course, be no extension of a monopoly in the present case because the patents expire on the same day. There are, as pointed out in re Robeson 331 F.2d 610, a number of reasons other than the extension of monopoly to apply the rule and invalidate one of the patents. However, there is no double patenting within the terms of the rule where the two patents are for separate inventions and are patentably distinguishable. See in re Robeson, supra, Application of Kaye 332 F.2d 816. That is the situation in the present case. It has already been held that the defendant's process infringes the 914 patent but does not infringe 913. The ruling that one patent is in-

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The plaintiff's position on the issue of infringement of patent 913 is stated in its brief as follows:

"We do not assert, and never have asserted, that the method used by defendant in commercial production of plastisol-lined crowns infringes both patents in suit. The evidence offered by plaintiff at the trial clearly establishes, we submit, that the 2,654,914 claims in suit are infringed. If, however, plaintiff has not sustained its burden of proof on this issue, it is plain that defendant's admissions establish infringement of the 2,654,913 patent."

Inasmuch as it has been found that the plaintiff has sustained its burden of proof on the issue of infringement of 914, it may be assumed that the plaintiff is not contending that the defendant is infringing the '914 patent.

fringed and another not, had to be and was, made upon the premise that the two patents are for separate inventions. I think that these patents are, in addition, patentably distinguishable and therefore I cannot sustain the defendant's contention of double patenting.

Another defense raised by the defendant is that the patents are invalid for indefiniteness under 35 U.S.C. Sec. 112 in that there is no test or means disclosed in either of them for determining what constitutes "cured" and "partially cured" and therefore the public cannot tell their metes and bounds. However, the patents in suit contain extensive and detailed disclosure of the time, temperatures and pressures for carrying out the two-step (914) and one step (913) molding and curing methods. The condition of the liners after the completion of each process is clearly specified both as to physical form and properties necessary for intended use. The mere fact that a patent specification contains no disclosure of a specific test procedure is not the bar to a valid patent as long as the patent otherwise teaches the art how to practice the invention. The specifications of the two patents are sufficiently definite and explicit.

In view of the foregoing, I hold patent 914 valid and infringed and patent 913 valid but not infringed.

APPENDIX C

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 17,280

CONTINENTAL CAN COMPANY, INC.

vs.

CROWN COCK & SEAL COMPANY, INC.,

Appellant

(D. C. Civil Action No. 33190)

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

Present:

HASTIE, *Chief Judge*, and
MCLAUGHLIN and STALEY, *Circuit Judges*.

Judgment

This cause came on to be heard on the record from the United States District Court for the Eastern District of Pennsylvania and was argued by counsel.